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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,995	10/15/2001	Vernon T. Brady	017750-732	9493
7590 11/25/2009 Frederick G. Michaud, Jr. BURNS, DOANE, SWECKER & MATHIS, L.L.P. P.O. Box 1404 Alexandria, VA 22313-1404				
			EXAMINER BRINEY III, WALTER F	
			ART UNIT 2614	PAPER NUMBER
			MAIL DATE 11/25/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/975,995

Applicant(s)

BRADY ET AL.

Examiner

WALTER F. BRINEY III

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 11, 12, 19, 25, 26, 29, 36, 37, 40, 76-83, 86-94 and 97-102 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 11, 12, 19, 25, 26, 29, 36, 37, 40, 76-83, 86-94 and 97-102 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 13 November 2009 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. **Claims 1-2, 11-12, 19, 25-26, 29, 36-37, 40, 76-83, 86-94 and 97-102 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims are further rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the

inventor(s), at the time the application was filed, had possession of the claimed invention.

Each claim as currently recited requires either means for information

transmission/reception, a step of isolating transmission/reception of information or a dual polarization antenna, wherein information is transmitted and received over a common

5 frequency. (See CLM at claims 1, 19 and 29, 13 November 2009.) However, the limitations requiring transmission and reception of information over a common frequency is new matter.

Applicant admits in its instant remarks (REM at 12-13, 13 November 2009) that its invention as embodied in a receiver transmits at 2.325 GHz while receiving at 3.025

10 GHz. (Also see SPEC at 14, 15 October 2001.) Applicant further admits that two frequencies are used to isolate transmission and reception. Oddly, Applicant then concludes in the next paragraph that its instant claims broadly encompass this feature by reciting the use of a common frequency. (*Id.* at 13.) This is a clear case where Applicant's disclosed invention and Applicant's claims directly contradict each other.

15 The contradiction creates a new matter issue. Moreover, it renders the claims indefinite since one of ordinary skill attempting to understand what Applicant invented would be confounded by the contradiction.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

20 obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

25

2. **Claim 1-2, 11-12, 19, 25-26, 29, 36-37, 40, 76-83, 86-88, 90-94 and 97-102 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,619,503 (filed 11 January 1994) (herein *Dent*) in view of US Patent 5,793,253 (filed 28 April 1995) (herein *Kumar*) and further in view of US Patent 4,459,651 (filed 1 July 1982) (herein *Fenter*).**

Claim 1 is limited to an apparatus for full duplex wireless communication of information. Concerning this claimed preamble, *Dent* likewise discloses a cellular/satellite communications system, wherein hub-to-satellite and satellite-to-hub communication takes place over in a full-duplex manner through frequency division multiplexing, where transmit and receive signals may be received on separate antennas or through a single antenna and split with a diplexing filter. *Dent* at col. 12 *l.* 55 to col. 13 *l.* 6.

The body of this claim requires 1) means for performing, 2) means for information transmission/reception, 3) regulator means and 4) means for inhibiting.

Concerning the first element, this claim further requires that a) the means for performing performs at least one of modulating and demodulating information signals and that b) the modulated information signal is boosted in power using a plurality of 90-degree hybrids arranged in tandem to output a plurality of amplification channels. *Dent* at fig.6 discloses the aforementioned hub 400 and satellite 410 used to communicate ultimately with a plurality of mobile stations 420. *Dent* at figs.7 & 8a respectively discloses the transmitter and receiver of the satellite. *Id.* at col. 4 *ll.* 29-32. Note that details of the transmitter's modulator bank 430, combiner, TWT 450 and antenna 460 (misabeled as 480 in fig.7)

are provided in figure 10. *Id.* at col. 11 *l.* to col. 12 *l.* 31. This modulator bank 430 corresponds to the claimed “means for performing at least one of *modulating* and demodulating information signals.” The modulated signals from 430 are combined and amplified by a TWT 450 (traveling wave tube amplifier) to boost their power. Although
5 the TWT generally corresponds to a device that boosts power of modulated information, it is evident that the TWT does not inherently comprise a “plurality of 90-degree hybrids arranged in tandem to output a plurality of amplification channels.”

Concerning this deficiency of *Dent*, the prior art recognizes that TWT amplifiers have severe power limitations. *Kumar* at col. 1 *ll.* 31-47. In solution, *Kumar* teaches a
10 solid state transmitter matched to a low power output oscillator and providing two-stages of power amplification. *Id.* at col. 1 *ll.* 61-65. The most important aspects of the *Kumar* amplifier are depicted in figs.5 & 7, where an input signal is power divided 41, provided to a plurality of power amplifiers 43A-43N and combined 45 to produce a high power output. *Id.* at col. 4 *ll.* 47-64. As seen in fig.7, which depicts amplifiers 43A-43N, a
15 plurality of quadrature (90-degree) hybrids 65a, 65b and 65c are arranged in tandem to produce a plurality of amplification channels labeled 69b1, 69b2, 69c1 and 69c2. *Id.* at col. 5 *ll.* 50-53. Finally, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the TWT amplifiers 1003 and 1007 of *Dent* with the high power solid state microwave transmitter of *Kumar* to overcome the aforesaid known
20 disadvantages of TWT amplifiers.

Concerning the second element, this claim further requires that the means for information transmission/reception provide a) information transmission using a first

polarization and b) information reception using a second polarization to thereby isolate information transmission from information reception in full duplex communication, wherein said means for information transmission/reception provides for information transmission and information reception using a common frequency. As mentioned

5 above, *Dent* discloses an antenna 460 for coherent signal transmission. The antenna is described in connection with fig.10 as a dual-circular polarized horn antenna 1009. *Id.* at col. 12 ll. 24-27. Further, both the satellite and hub communicate in essentially the same manner, just using a different set of k-band frequencies. *Id.* at col. 12 ll. 55-63. This frequency division provides one form of duplex signal separation. A second form of
10 separation/isolation just as claimed is provided in that signals are transmitted from both the hub and satellite using opposite polarities. *Id.* at col. 12 ll. 22-34, 55-63.

Specifically, both left and right-handed signals are transmitted from the hub and satellite such that the left and right-handed signals crossing paths will not interact. *Id.* In this way, the dual-polarized horn antenna(e) corresponds to “means for information

15 transmission/reception, said information transmission/reception means providing for information transmission using a first polarization and for information reception using a second polarization to thereby isolate information transmission from information reception in full duplex communication.

The above interpretation of the claim notwithstanding, it is noted that because the
20 statutory class of claim 1 is an “apparatus,” functional limitations such as “providing for information transmission using a first polarization and for information reception using a second polarization to thereby isolate information transmission from information

reception in full duplex communication” necessitate that the prior art apparatus only be capable of performing those functions. In this case, the apparatus of *Dent* clearly is capable of isolating solely on the basis of polarization in the case that beams from the satellite happen to only route through TWT 1003 (as may occur if a zero voltage signal is
5 present on certain beams or only one beam is active), and beams from the hub happen to only route through TWT 1007. In this way, the apparatus of *Dent* is inherently capable of performing the claimed function.

Finally, regarding the “wherein” limitations of the second element, because these limitations render the claim indefinite, the Examiner must construe the claim to overcome
10 the indefiniteness and apply prior art against the claim as necessary. Here, because the indefiniteness is based on a contradiction between the claim and the specification, the Examiner will construe the claim to be consistent with the specification. Accordingly, the “wherein” limitations should require that said means for information transmission/reception provides for information transmission and information reception
15 using different frequencies. This is precisely what *Dent* does, since *Dent* uses two distinct bands of frequencies for transmission and reception. *Dent* at col. 12 *l.* 44 to col. 13 *l.* 6.

Concerning the third element, this claim requires that the regulator means has at least one DC voltage regulator for providing at least two DC output voltages. *Dent* does
20 not disclose regulating power. In fact, *Dent* does not even mention power consumption. But since power is a necessity for of the *Dent* invention to perform (i.e. it is an electrical device), it is incumbent upon one of ordinary skill in the art to select and provide a power

source. For example, the regulator of *Fenter* serves to provide consumable power in a controlled manner such that power is provided with minimal circuit overhead, thereby reducing weight and size while increasing efficiency. *Fenter* at col. 2 ll. 1-16.

Like this third claimed element, *Fenter* teaches providing two DC outputs, depicted in figure 2 as a +24V and a +5V output. *Id.* at col. 1 ll. 9-12, col. 4 l. 2. In this way, *Fenter* discloses a “regulator means having at least one DC voltage regulator for providing at least two DC output voltages (+24V and +5V)” as claimed. Finally, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide power in the manner taught by *Fenter* to realize the aforesaid advantages in addition to the inherent need to provide power.

Concerning the fourth element, this claim requires that the means for inhibiting inhibits a first of the two DC voltage outputs when a second of the two DC voltage outputs is above a predetermined threshold. As noted apropos the third element *supra*, it would have been obvious to combine *Dent* with *Fenter*, to provide a two output DC voltage regulator. Moreover, in operation, the *Fenter* regulator monitors the +5V output at pin 04 of error amp 300. *Id.* at col. 8 ll. 52-66, fig.2. When the +5V output rises above a specified threshold, the error amplifier enables optical coupler 320, which prevents timer 240 from pulsing transistor 170, which effectively prevents further power from being transmitted to the secondary transfer circuits that form the +24V output. *Id.* In this way, *Fenter* discloses “means (300 and 320) for inhibiting a first (+24V) of said two DC voltage outputs when a second (+5V) of said two DC voltage outputs is above a

predetermined threshold” as claimed. Therefore, *Dent* in view of *Kumar* and further in view of *Fenter* makes obvious all limitations of the claim.

Claim 2 is limited to an apparatus according to claim 1. Figure 10 of *Dent* clearly illustrates “modulating means” comprising ‘input means” that allow a video signal from
5 each antenna element to arrive at “data processing means” 1000 and 1001, which output to power output means 1003. Therefore, *Dent* in view of *Kumar* and further in view of *Fenter* makes obvious all limitations of the claim.

Claim 11 is limited to an apparatus according to claim 1. *Dent* discloses the use of two antennae inherently separated by a distance. One antenna is used for reception
10 while the other is used for transmission. See column 12, lines 64-65. Therefore, *Dent* in view of *Kumar* and further in view of *Fenter* makes obvious all limitations of the claim.

Claim 12 is limited to an apparatus according to claim 1. In alternative to the use of two antennae, *Dent* discloses the use of a single antenna. See column 12, lines 65-67. Therefore, *Dent* in view of *Kumar* and further in view of *Fenter* makes obvious all
15 limitations of the claim.

Claim 76 is limited to an apparatus according to claim 11. Although figure 10 illustrates direct modulation of a 20GHz VCO, *Dent* discloses modulating video signals first modulated to 2-3GHz to the greater 20GHz band. See column 12, lines 44-54. Therefore, *Dent* in view of *Kumar* and further in view of *Fenter* makes obvious all
20 limitations of the claim.

Claim 77 is limited to an apparatus according to claim 76. In performing the aforementioned multiple step modulation, *Dent* uses an 18GHz local oscillator signal for

modulating a sideband up to 20GHz. See column 12, lines 51-54. Therefore, *Dent* in view of *Kumar* and further in view of *Fenter* makes obvious all limitations of the claim.

Claims 78-83 are limited to apparatuses according to claim 76. As seen in figure 7 of *Kumar*, a plurality of parallel amplification channels are provided, namely 69b1, 69b2, 69c1 and 69c2. The plural of channels are provided in part by “coupler” 65a (claim 79). In fact, three couplers 65a, 65b and 65c are used to provide four channels with an output power ranging up to 125W (claim 80). See column 4, lines 56-59. The channels are combined using combiners 69a, 69b and 69c (claims 81 and 83), where each is a quadrature/90-degree hybrid (claim 82). See column 5, lines 50-53. Therefore, *Dent* in view of *Kumar* and further in view of *Fenter* makes obvious all limitations of the claim.

Claims 86 and 87 are limited to apparatuses according to claim 11. Figure 8b of *Dent* illustrates components of the receiver bank 340 seen in figure 8a of *Dent*. In particular, a down converter 830/“demodulating means” is provided inherently provided with input means to receive the output from component 820 and data processing means for performing down conversion/demodulation. Another down converter 440 is provided in figure 7. Therefore, *Dent* in view of *Kumar* and further in view of *Fenter* makes obvious all limitations of the claim.

Claim 88 is limited to an apparatus according to claim 87. A local oscillator provides a demodulating signal to bank 440 of figure 7, units 830 of figure 8b, and, although not shown, an 18GHz signal to the transmitter of figure 10. Therefore, *Dent* in view of *Kumar* and further in view of *Fenter* makes obvious all limitations of the claim.

Claims 19, 25, 26 and 90-94 recite methods that are inherently, respectively performed by the apparatuses of claims 1, 11, 12, 76-78, 80 and 81, and are rejected for the same reasons.

Claims 29, 36, 37, 40 and 97-102 recite transceivers that are essentially,
5 respectively the same as the apparatuses of claims 1, 11, 12, 86, 76/77, 78, 81, 80, 79 and 82, and are rejected for the same reasons.

Claims 84 and 85 are limited to apparatuses according to claim 11. Apropos the rejections of these claims presented in the Non-Final Office Action filed 15 June 2006, Dent does not disclose regulating power, or for that matter any manner concerning power
10 consumption. As power is a necessity for any of Dent's products to perform, it is incumbent upon one of ordinary skill in the art to select some type of power feeding mechanism. As such, the regulator of *Fenter* serves to provide consumable power in a controlled manner such that power is provided with minimal circuit overhead, thereby reducing weight and size while increasing efficiency. See column 2, lines 1-16.

15 Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide power in the manner taught by *Fenter* to realize the aforesaid advantages in addition to the inherent need to provide power.

Claims 95 and 96 recite methods that are inherently, respectively performed by the apparatuses of claims 84 and 85, and are rejected for the same reasons.

20 **Claims 103 and 104** recite transceivers that are essentially, respectively the same as the apparatuses of claims 84 and 85, and are rejected for the same reasons.

3. **Claim 89 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Dent* in view of *Kumar* in view of *Fenter* and further in view of US Patent 5,911,117 (filed 14 October 1997) (herein *Bhame*).**

Claim 89 is limited to an apparatus according to claim 87. Despite Applicant's failure to depict the claimed housings, it is noted that *Dent* fails to suggest suitable housings for the transceiver components used in both the satellite 410 and hub 400.

However, *Bhame* at figure 3, column 9, lines 12-17, and column 13, lines 37-43, discloses transceiver components 31 as well as radio equipment for sending and receiving radio signals. These components correspond to "modulating means and said demodulating means." *Bhame* further teaches that said transceiver components, and radio equipment are enclosed within housing 33, which corresponds to the "hermitically sealed housing".

It would have been obvious for one of ordinary skill in the art at the time of the invention to house the transceiver components of *Dent*, including the modulating and demodulating means, in the manner taught by *Bhame* for the purpose of providing a protective housing for the radio communication components.

Response to Arguments

Applicant's arguments filed 13 November 2009 with respect to all the pending claims have been considered but are moot in view of the new ground(s) of rejection. Specifically, because the Applicant's arguments are premised on the propriety under 35 U.S.C. § 112 of the new limitations added to all the claims, and the foregoing § 112

rejections show that the claims are not proper, Applicant's arguments against the prior art are moot. (*See* REM at 13-15, 13 November 2009.)

Conclusion

Any inquiry concerning this communication or earlier communications from the
5 examiner should be directed to WALTER F. BRINEY III whose telephone number is
(571)272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Curtis A. Kuntz can be reached on (571) 272-7499. The fax phone number
for the organization where this application or proceeding is assigned is 571-273-8300.

10 Information regarding the status of an application may be obtained from the
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/Walter F. Briney III/
Primary Examiner
Art Unit 2614

20 11/25/09